[Ms. Gilmour and Dr. Rosenberg reply:]

We wrote our article as a review of the relevant legislation and decisions and as an examination of the approach the courts will likely take with these issues. The scarcity of cases directly on point gives some indication of the magnitude of what Drs. Young and Lynch perceive as the "threat under which they work". It is truly of minor proportions, and physicians are unlikely to face litigation over competently rendered care.

However, Young and Lynch are alarmed that we recommend close adherence to the guidelines set by the medical profession, in certain instances seeking direction from a court of law when disagreement or uncertainty exists. Yet if there were judicial decisions regarding these common yet uncertain situations we would have guidance for other, similar cases.

Young and Lynch also object to our inclusion of accepted criteria for obvious death. As we indicated in our article, when encountered by nonphysicians these are the indicators of obvious death, and resuscitation need not be started. Otherwise it must be assumed that resuscitation is indicated so that CPR can be rapidly initiated. Perhaps Young and Lynch are taking these criteria out of the context in which they appear, in a section on reasons for withholding CPR that also includes refusal by a competent patient and DNR orders.

Discontinuation of life-support measures for patients who are not brain dead is frequently proposed by physicians who face these difficult decisions. We outline the legal uncertainty surrounding such action in some — certainly not all — cases and discuss the possible approaches Canadian courts will take. We repeat that it is prudent to adhere closely to existing DNR and withholding-treatment policy until such time as these issues are clarified. Such clarification may come from legislation, court decision or accepted medical practice as defined by guidelines similar to those for DNR orders.

Finally, whether the "judicial model" is appropriate for dealing with the decision or not, the fact remains that in our legal system as presently structured there is the potential for that type of involvement. We think it better to have that involvement in advance of action being taken in those few situations the article indicates to be appropriate rather than to have the courts later examining the decision.

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Euthanasia in the Netherlands

I greatly appreciate the comments (*Can Med Assoc J* 1989; 140: 788) of H. Rigter, PhD, E. Borst-Eilers, MD, and H.J.J. Leenen, JD, of the Health Council of the Netherlands, regarding my letter "Should doctors kill patients?" (*Can Med Assoc J* 1988; 139: 1041). As Rigter and colleagues outline, the formal guidelines on euthanasia that now exist in the Netherlands clearly attempt to uphold an ethical standard. However, other European physicians have not accepted this standard, and several difficulties are apparent.

If euthanasia is being practised in a hospital or a nursing home, where probably more than 50% of residents suffer from cognitive impairment and a significant proportion will, therefore, lack the capacity to consent, how can patient decisions be "well informed, free and enduring"? When does the question of competence arise? How and by whom is it decided?

My attention was caught by an electronic reproduction on the editorial page of the *Wall Street Journal* of Sept. 29, 1987, of the article "Involuntary euthanasia in Holland", by Dr. Richard Fenigsen, of the Willem-Alexander Hospital, in Hertgenbosch, the Netherlands. Fenigsen quoted disturbing information from other Dutch authorities, questioning the depiction of euthanasia as strictly voluntary. He cited a study by H.W. Hilhorst (sponsored by Utrecht University and the Royal Dutch Academy of Science) in which involuntary active euthanasia was found to be practised in eight hospitals. Anecdotal reports, apparently published in the Netherlands, are also quoted. The Dutch Patients' Association is said to have placed a warning in the press that in many hospitals patients were being killed without their will or knowledge, or the knowledge of their families, and advised patients and their families to carefully inquire about every step in treatment and when in doubt to consult a reliable expert outside the hospital. If active euthanasia is being practised, will the elderly or infirm accept hospitalization or even a consultation from a physician?

Fenigsen's article and its references appear to contradict the path laid out by Rigter and colleagues in their letter. These publications clearly demonstrate the "can of worms" we open when talking about active euthanasia, as I predicted.

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UFOs and cancer?

A rather unusual theory has been proposed regarding the biologic effects of electromagnetic fields.[1] It has been suggested that individuals living in areas where underground rock strain generates electromagnetic radiation may be prone to increased carcinogenic effects.[2] Several geographic locations with associated observed luminosities, including at least one Canadian site, have been denoted.[3]

This so-called tectonic strain theory attempts to correlate luminous atmospheric phenomena with a variety of neuropsychiatric, psychologic and neurobiologic effects. Although it has been suggested that magnetic fields may be associated with a higher incidence of brain tumours, other studies have found that this relationship is not well established.[4,5]

Proponents of this theory, including a Canadian neurophysiologist, attempt to provide support for their hypothesis by linking several remotely related but generally unproven concepts: that luminous atmospheric phenomena are associated with tectonic activity; that tectonic activity is associated with the emission of electromagnetic radiation; and that there can be electromagnetic induction of brain tumours. The unfounded conclusion is that luminous atmospheric phenomena are associated temporally and geographically with an increased incidence of brain tumours and neurobiologic disturbances. Although there is some evidence to support elements of these effects (e.g., the inconsistent and poorly understood detection of emitted electromagnetic energy during some seismic events[6]), the actual physical mechanism that might drive the effects has not been established.[7]

Our concern is that a theory that implies a novel environmental carcinogenic effect should be supported by a substantial body of scientific evidence before being formally announced. The tectonic strain theory uses circumstantial evidence and statistical correlations rather than empirical data to imply a relation between seismic events and physiologic effects. And as for the observed luminous objects, many of the incidents used as data in the statistical studies have been shown to have more mundane optical and physiological explanations.[8]

Proponents of the tectonic strain theory tend to respond to criticism by offering more correlations of questionable data and by claiming that their theory is an example of a broad, interdisciplinary phenomenon that is difficult to comprehend.[9] However, it is precisely for this reason that extreme caution should be used in the presentation of the theory, especially when statements are made about health implications for the general populace, which is already nervous and ill-informed about many aspects of environmental hazards. Far-reaching statements should be preceded by quantitative and empirical studies, not circumstantial inference.

We feel that before it can be suggested that luminous aerial phenomena are evidence that seismic radiation will raise the incidence of cancer in the geographic vicinity of the phenomena the physical mechanism to produce such effects should be at least partially understood. Despite the large number of papers describing the tectonic strain theory the evidence that it reflects a real phenomenon is not convincing. Both geophysicists and medical researchers should be aware of the tenuous nature of the theory's foundation.

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References

1. Persinger MA: Geophysical variables and behavior: IX. Expected clinical consequence of close proximity to UFO-related luminosities. *Percept Mot Skills* 1983; 56: 259–265
2. Idem: Geophysical variables and behavior: LIII. Epidemiological considerations for incidence of cancer and depression in areas of frequent UFO reports. *Percept Mot Skills* 1988; 67: 799–803
3. Persinger MA, Derr JS: Geophysical variables and behavior: XXXII. Evaluation of UFO reports in an area of infrequent seismicity: the Carman, Manitoba, episode. *Percept Mot Skills* 1985; 61: 807–813
4. Kavet RI, Banks RS: Emerging issues in extremely-low-frequency electric and magnetic field health research. *Environ Res* 1986; 39: 386–404
5. Greenberg RS, Shuster JL Jr: Epidemiology of cancer in children. *Epidemiol Rev* 1985; 7: 22–48
6. Demin VM, Sobolev GA, Los' VF et al: [The nature of mechanoelectric radiation from ore bodies.] *Dokl Akad Nauk SSSR* 1981; 260: 9–11
7. Rutkowski CA: Geophysical variables and human behavior: XVI. Some criticisms. *Percept Mot Skills* 1984; 58: 840–842
8. Idem: Geophysical variables and behavior: XXXIV. Further comments. *Percept Mot Skills* 1986; 63: 18
9. Persinger MA: Geophysical variables and behavior: XXVI. A response to Rutkowski's critique of the tectonic strain hypothesis for UFO phenomena. *Percept Mot Skills* 1985; 60: 575–582

Fitness to drive and emotional disorders

In their article "Determining medical fitness to drive: physicians' responsibilities in Canada" (*Can Med Assoc J* 1989; 140: 375–378) Coopersmith and associates indicate that the legal precedent cited most often in the context of foreseeable harm to others by a medically unfit driver is the 1976 California Supreme Court decision *Tarasoff v. Regents of the University of California*.[1] Then they provide two examples involving primarily neurologic issues.

Although the authors have raised the spectre of one of the most controversial forensic cases in psychiatry,[2] they have only peripherally examined the complex balancing act that faces physicians managing patients with severe emotional disturbances who operate a motor vehicle. In numerous cases practitioners must deal with the side effects of psychotropic drugs, limited control of distorted perceptions and concurrent substance use, all in relation to disequilibrium in the patient's social environment.

We believe that because of the nature of these multiple, overlapping variables it is impossible to develop "objective, rigorous and scientific measures" of driving ability that would offset the subjective component of reporting patients suffering from emotional disorders. One particu-